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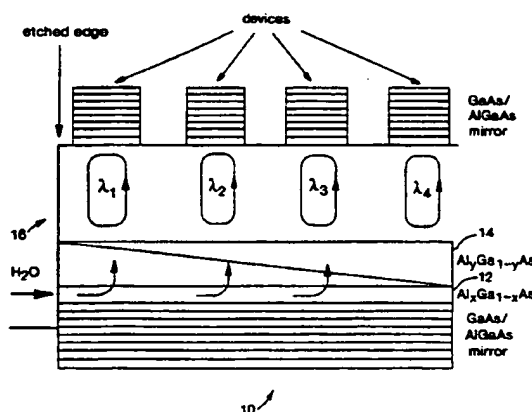
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(54) Title: POSTGROWTH ADJUSTMENT OF CAVITY SPECTRUM FOR SEMICONDUCTOR LASERS AND DETECTORS



(57) Abstract: A method for selectively tuning the wavelength of optical cavities in semiconductor lasers and detectors after epitaxial growth using lateral wet oxidation. Tuning layers of $\text{Al}_x\text{Ga}_{1-x}\text{As}$ and $\text{Al}_y\text{Ga}_{1-y}\text{As}$ are positioned inside or adjacent to the optical cavity. Wet lateral oxidation is then used to transform the high-index semiconductor into a low-index oxide for tuning. The oxidation proceeds laterally into the $\text{Al}_x\text{Ga}_{1-x}\text{As}$ and then attacks the $\text{Al}_y\text{Ga}_{1-y}\text{As}$ layer vertically. The ratios of the oxidation rates can be controlled by adjusting the compositions of the materials, most notably because the oxidation rate increases as the amount of aluminum increases. The oxidized thickness depends on the time that the tuning layer is exposed to vertical oxidation. Due to the change in optical index from the semiconductor to the oxide, the optical thickness and the resonant wavelength of the cavity are also tailored along the lateral oxidation. As a result, the resonant wavelength of a device depends on its distance from the etched edge.

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B. FIELDS SEARCHED

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>FIGORE A ET AL: "POSTGROWTH TUNING OF SEMICONDUCTOR VERTICAL CAVITIES FOR MULTIPLE-WAVELENGTH LASER ARRAYS" IEEE JOURNAL OF QUANTUM ELECTRONICS, IEEE INC. NEW YORK, US, vol. 35, no. 4, April 1999 (1999-04), pages 616-622. XP000850971 ISSN: 0018-9197 the whole document</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/---</p>	<p>1-13, 16-24, 26-46</p> <p>3, 14 15, 25</p>

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

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8 document member of the same patent family

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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